

Application No. 08/938,468
Amendment "II" dated June 30, 2005
Reply to Office Action mailed April 13, 2005

AMENDMENTS TO THE CLAIMS

The listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1 - 46 (cancelled).

47. (Currently Amended) A data processing system for displaying and receiving data through user-defined custom forms, each form having a plurality of fields, each field representing a form component and having an associated description indicating characteristics of the field for use in displaying the field and in utilizing the field to obtain and present the data and a standard behavior indicating standard operations associated with the field, the data processing system comprising:

means for storing a form data structure having a field object with one or more attributes for each field of the form, the one or more attributes comprising at least one of (i) ~~an inform attribute to indicate that a notification is sent whenever the field is affected by a user event,~~ (ii) a group attribute to indicate that the field is in a particular attribute group for enabling or disabling the field based on any other fields within the particular attribute group, or ~~(iii)~~ (ii) an idle attribute to indicate that a form control procedure for the form is called periodically;

means for storing the form control procedure which is customized to control behavior of the form, wherein the behavior of the form indicates operations associated with the form;

a transaction event processor that includes

means for selecting one of the plurality of forms;

means for retrieving the form data structure and form control procedure for the selected form;

means for receiving input from a user of the computer system;

means for, in response to receiving the user input, invoking the form control procedure whereby the form control procedure performs a custom behavior for the fields of the form, the custom behavior indicating user-defined operations associated with the fields of the form; and

means for performing the standard behavior for the fields of the form when custom behavior is not performed;

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means for packing the user input into the user-input data structure; and
means for presenting user input from the user-input data structure to a designated user in accordance with a form data structure for displaying the user input.

48. (Previously Presented) The data processing system of claim 47 wherein the means for invoking the form control procedure includes means for invoking the form control procedure of the retrieved form data structure to initially display each of the plurality of fields on a display device.

49. (Previously Presented) The data processing system of claim 47 wherein the means for invoking the form control procedure includes means for invoking the form control procedure after receiving user input and before performing the standard behavior for the field to which the user input is directed.

50. (Previously Presented) The data processing system of claim 49 wherein the form control procedure returns an indication to suppress the performing of the standard behavior for the field to which the user input is directed.

51. (Previously Presented) The data processing system of claim 49 wherein the form control procedure returns an indication to perform the standard behavior for the field to which the user input is directed and including means for performing the standard behavior for the field to which the user input is directed.

52. (Previously Presented) The data processing system of claim 47 wherein the means for invoking the form control procedure includes means for invoking the form control procedure after performing the standard behavior for the field to which the user input is directed.

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53. (Previously Presented) The data processing system of claim 47 wherein the means for invoking the form control procedure includes:

means for invoking the form control procedure once for each field of the form to effect the display of the fields of the form;

means for invoking the form control procedure upon receiving user input, passing to the form control procedure an indication of the field to which the user input is directed, and returning from the form control procedure an indication whether to perform the standard behavior for the field to which the user input is directed;

means for invoking the form control procedure after determining whether to perform the standard behavior for the field to which the user input is directed and passing to the form control procedure an indication of the field to which the user input is directed

whereby the form control procedure effects the customizing of the behavior of the form by adding to and overriding the standard behavior of the fields.

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54. (Currently Amended) A method for presenting data collected from custom forms in a data processing system, the data processing system including a display device for displaying the forms and an input device for receiving input data, each form having a plurality of fields, each field representing a form component and having an associated description indicating characteristics of the field for use in displaying the field and utilizing the field to obtain and present data and a standard behavior indicating standard operations associated with the field, the method comprising the steps of:

retrieving a form data structure for a form, to be displayed, the form data structure having a field object with one or more attributes for each field of the form, the one or more attributes comprising at least one of (i) ~~an inform attribute to indicate that a notification is sent whenever the field is affected by a user event,~~ (ii) a group attribute to indicate that the field is in a particular attribute group for enabling or disabling the field based on any other fields within the particular attribute group, or (iii)(ii) an idle attribute to indicate that a form control procedure for the form is called periodically;

retrieving a form control procedure, the form control procedure for providing custom behavior for the fields of the form, the custom behavior indicating user-defined operations associated with the fields of the form;

for each field of the form, invoking the form control procedure and specifying the field wherein the form control procedure controls the displaying of the specified field;

for each of a plurality of fields of the form, receiving input data through the input device, the input data being data directed to the field;

for each received input data, invoking the form control procedure specifying the input data and an indication of field to which the input data is directed, so that the form control procedure can override the standard behavior of the field;

for each field of the form, invoking the form control procedure specifying the field wherein the data directed to the field is prepared for presentation; and

presenting the prepared data according to the form control procedure.

55. (Previously Presented) The method of claim 54, including the step of processing the retrieved form data structure along with the prepared data so that a recipient of the processed data can use the form data structure to display the processed data.

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56. (Currently Amended) A method of collecting data in a data processing system of a computer system, the computer system having a display device for displaying a plurality of forms developed by a user of the data processing system and an input device for inputting data, each form having a plurality of fields, each field representing a form component and having an associated description indicating characteristics of the field for use in displaying the field and utilizing the field to obtain the data and a standard behavior indicating standard operations associated with the field, the method comprising the steps of:

for each of the forms, storing a form control procedure and a data description, as opposed to a program instruction description, of the fields of the form, including field placement, in a form data structure, the form control procedure for overriding the standard behavior associated with each of the fields, the form data structure including a field object with one or more attributes for each field of the form, the one or more attributes comprising at least one of (i) a group attribute to indicate that the field is in a particular attribute group for enabling or disabling the field based on any other fields within the particular attribute group, or (ii) an idle attribute to indicate that a form control procedure for the form is called periodically;

selecting one of the plurality of forms;

retrieving the form data structure for the selected form;

for each of the fields of the selected form, invoking the form control procedure of the retrieved form data structure to control the displaying of the field on the display device;

for each of a plurality of fields of the selected form,

receiving user input from the input device, the user input being directed to the field;

prior to performing the standard behavior of the field to which the user input is directed, invoking the form control procedure of the retrieved form data structure and passing to the form control procedure the received user input and an indication of the field to which the user input is directed wherein the form control procedure determines whether to override the standard behavior of the field to which the user input is directed;

when the form control procedure determines to override the standard behavior, performing a custom behavior for the field to which the

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user input is directed, the custom behavior indicating user-defined operations associated with the fields of the form; and
returning an indication as to whether the standard behavior has been overridden; and
performing the standard behavior for the field only if the standard behavior has not been overridden.

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57. (Currently Amended) A method in a data processing system of a computer system for storing a custom form, the custom form having a plurality of fields, each field representing a form component and having a description indicating characteristics of the field for use in displaying the field and in utilizing the field to obtain and present the data and a standard behavior indicating standard operations associated with each field, the method comprising the steps of:

storing a form header containing data describing a window into which fields are to be displayed on a display device;

for each field, storing a field object having a data description, as opposed to a program instruction description, of the field, including field placement, wherein the field object includes one or more attributes for each field of the form, the one or more attributes comprising at least one of (i) a group attribute to indicate that the field is in a particular attribute group for enabling or disabling the field based on any other fields within the particular attribute group, or (ii) an idle attribute to indicate that a form control procedure for the form is called periodically; and

storing a form control procedure, the form control procedure for receiving data that is input into a field and an indication of the field, for determining whether to perform a custom behavior for the field, and prior to the standard behavior for the field being performed, for performing the custom behavior for the field and returning an indication as to whether the standard behavior for the field is to be performed, the custom behavior indicating user-defined operations associated with the fields of the form.

58. (Previously Presented) The method of claim 57 wherein the step of storing a form header comprises the steps of:

storing a primary key for retrieving the form header and wherein the primary key designates a location of the form header;

storing form flags for specifying the window appearance;

storing form coordinates specifying the position and size of the window; and

storing a character string for use as a form title.

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59. (Previously Presented) The method of claim 57 wherein the step of storing a field object comprises the steps of:

storing a primary key for retrieving the field object and wherein the primary key designates a location of the field object;

storing a secondary key for providing an alternative means for retrieving the field object and wherein the seconding/key designates a location of a unique identifier for the field;

storing a field type;

storing attributes of the field;

storing coordinates of the field; and

storing font characteristics of the field.

60. (Previously Presented) The method of claim 57 wherein the step of storing a form control procedure comprises the steps of:

storing a primary key for retrieving the form control procedure and wherein the primary key designates a location of the form control procedure; and

storing a computer code that implements the custom behavior of the fields.

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61. (Currently Amended) A method in a data processing system for inputting user input into a custom form, the user input for being displayed by a recipient of the user input, the data processing system having a plurality of field types, each field type having a standard behavior, the method comprising the steps of:

- retrieving a data description, as opposed to a program instruction description, of each field to be displayed on the custom form, the description indicating characteristics of the field for use in displaying the field, including field placement, and in utilizing the field to obtain and present the user input at the data processing system;

- retrieving a form control procedure for the custom form, the form control procedure for receiving data directed to a field of the form and an indication of the field to which the data is directed;

- displaying the custom form on a display device;

- receiving data directed to a field of the displayed custom form;

- prior to performing the standard behavior for the field to which the data is directed, invoking the retrieved form control procedure and passing to the form control procedure the received data and an indication of the field to which the data is directed;

- under control of the form control procedure,

- performing a custom behavior for the field to which the data is directed, the custom behavior including modifying the display of a field other than the field to which the data is directed; and

- returning an indication whether to perform the standard behavior for the field to which the data is directed; and

- performing the standard behavior for the field to which the data is directed only if the returned indication indicates to perform the standard behavior for the field; and

- packaging the data for the fields of the form into a data structure, wherein the data structure includes a field object with one or more attributes for each field of the form, the one or more attributes comprising at least one of (i) a group attribute to indicate that the field is in a particular attribute group for enabling or disabling the field based on any other fields within the particular attribute group, or (ii) an idle attribute to indicate that the form control procedure for the form is called periodically.

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62. (Previously Presented) The method of claim 61 including the steps of:
re-invoking the retrieved form control procedure and passing to the retrieved form control procedure an indication of the field to which the data is directed;
under control of the re-invoked form control procedure, performing further custom behavior for the field to which the data is directed.
63. (Previously Presented) The method of claim 61 wherein the step of displaying the custom form further includes
for each field of the form,
invoking the form control procedure and passing to the form control procedure an indication of the field which identifies the field; and
under control of the form control procedure, displaying the indicated field.
64. (Currently Amended) The method of claim 61 including the steps of:
~~packaging the data for the fields of the form into a data structure;~~
packaging the retrieved description and the retrieved form control procedure into the data structure; and
processing the data structure such that the recipient of the data structure uses the packaged description and form control procedure to display the data for the fields of the form.
65. (New) The method of claim 47, wherein the one or more attributes includes the group attribute.
66. (New) The method of claim 47, wherein the one or more attributes includes the idle attribute.